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[A281.8 F27.2] FARM INDEX

U.S.
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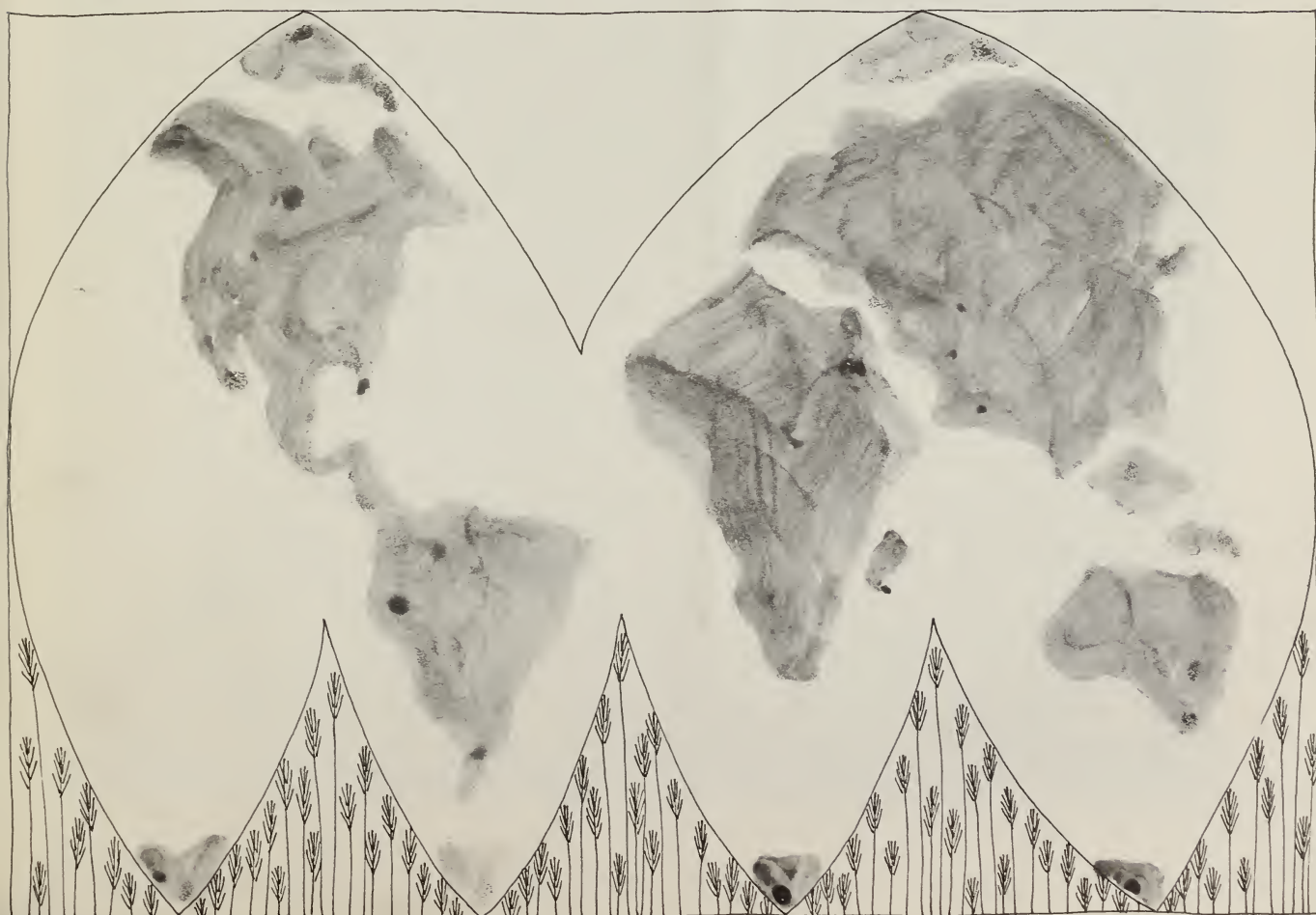
*The Case of the
Mechanical
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Major Problems
for a Minority*

*What's in a
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WORLD FOOD: SHORTAGE OR SURPLUS?



ECONOMIC TRENDS

ITEM	UNIT OR BASE PERIOD	'57-'59 AVERAGE	1966		1967		
			YEAR	JULY	MAY	JUNE	JULY
Prices:							
Prices received by farmers	1910-14=100	242	266	268	252	255	257
Crops	1910-14=100	223	235	246	221	227	225
Livestock and products	1910-14=100	258	292	287	279	279	285
Prices paid, interest, taxes and wage rates	1910-14=100	293	334	334	342	343	345
Family living items	1910-14=100	286	315	315	320	321	323
Production items	1910-14=100	262	285	285	289	290	291
Parity ratio		83	80	80	74	74	74
Wholesale prices, all commodities	1957-59=100	—	105.9	106.4	105.8	106.3	106.5
Industrial commodities	1957-59=100	—	104.7	105.2	106.0	106.0	106.1
Farm products	1957-59=100	—	105.6	107.8	100.7	102.4	102.4
Processed foods and feeds	1957-59=100	—	113.0	113.8	110.7	112.6	113.2
Consumer price index, all items	1957-59=100	—	113.1	113.3	115.6	116.0	—
Food	1957-59=100	—	114.2	114.3	113.9	115.1	—
Farm Food Market Basket: ¹							
Retail cost	Dollars	983	1,100	1,099	1,072	1,091	—
Farm value	Dollars	388	442	446	399	424	—
Farm-retail spread	Dollars	595	658	653	673	667	—
Farmers' share of retail cost	Per cent	39	40	41	37	39	—
Farm Income:							
Volume of farm marketings	1957-59=100	—	121	112	95	113	116
Cash receipts from farm marketings	Million dollars	32,247	43,219	3,309	2,827	3,232	3,300
Crops	Million dollars	13,766	18,384	1,436	746	1,245	1,400
Livestock and products	Million dollars	18,481	24,835	1,873	2,082	1,987	1,900
Realized gross income ²	Billion dollars	—	49.7	—	—	49.1	—
Farm production expenses ²	Billion dollars	—	33.3	—	—	34.5	—
Realized net income ²	Billion dollars	—	16.4	—	—	14.6	—
Agricultural Trade:							
Agricultural exports	Million dollars	4,105	6,855 ³	491	544	520	—
Agricultural imports	Million dollars	3,977	4,492 ³	343	338	365	—
Land Values:							
Average value per acre	1957-59=100	—	150 ⁴	—	160 ⁴	—	—
Total value of farm real estate	Billion dollars	—	171.1 ⁴	—	182.0 ⁴	—	—
Gross National Product: ²							
Consumption ²	Billion dollars	457.3	743.3	—	—	775.1	—
Investment ²	Billion dollars	294.2	465.9	—	—	489.7	—
Government expenditures ²	Billion dollars	68.0	118.0	—	—	105.1	—
Net exports ²	Billion dollars	92.4	154.3	—	—	175.0	—
Income and Spending: ⁵							
Personal income, annual rate	Billion dollars	365.3	584.0	584.7	618.2	622.6	627.1
Total retail sales, monthly rate	Million dollars	17,098	25,306	25,362	25,897	26,478	26,740
Retail sales of food group, monthly rate	Million dollars	4,160	5,927	5,924	5,996	6,063	—
Employment and Wages: ⁵							
Total civilian employment ⁶	Millions	64.9	72.9	72.8	73.3	74.1	74.5
Agricultural ⁶	Millions	6.0	4.0	3.9	3.7	3.7	3.9
Rate of unemployment ⁶	Per cent	5.5	3.8	3.9	3.8	4.0	3.9
Workweek in manufacturing	Hours	39.8	41.3	41.0	40.4	40.2	40.3
Hourly earnings in manufacturing, unadjusted	Dollars	2.12	2.71	2.71	2.81	2.81	2.81
Industrial Production: ⁵							
	1957-59=100	—	156	157	156	155	156
Manufacturers' Shipments and Inventories: ⁵							
Total shipments, monthly rate	Million dollars	28,745	44,037	44,327	44,945	44,867	—
Total inventories, book value end of month	Million dollars	51,549	77,897	72,958	80,578	80,416	—
Total new orders, monthly rate	Million dollars	28,365	45,182	45,625	45,738	46,026	—

¹ Average annual quantities of farm food products purchased by urban wage-earner and clerical-worker households (including those of single workers living alone) in 1960-61—estimated monthly. ² Annual rates seasonally adjusted second quarter. ³ Preliminary. ⁴ As of March 1. ⁵ Seasonally adjusted. ⁶ Series revised beginning January 1967, giving data for persons 16 years of age and older.

Sources: U.S. Dept. of Agriculture (Farm Income Situation, Marketing and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Advance Retail Sales Report and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale Price Index).

THE AGRICULTURAL OUTLOOK

High plateau. General economic activity picked up in the second quarter after a weak first three months. Current indications point to a strengthening in general economic activity. Government and consumer demand will likely increase along with the recent recovery in housing activity. Investment spending should continue steady or up slightly. Expanding final sales will help work off excess inventory accumulations. For the year, the gross national product could average 5 to 5½ per cent above the 1966 level of \$743 billion.

A larger volume of farm marketings and lower farm prices during the first half of 1967 resulted in a 2 per cent decline in cash receipts. Production expenses during January-June were estimated 5 per cent above the same period in 1966. And realized net farm income was down somewhat from the near record level in the first half of the previous year.

A general increase in supplies of farm products—particularly livestock—in the first half of 1967 was accompanied by further gains in consumer demand. In the livestock sector, sharply expanded production of red meat and poultry reduced prices 6 per cent below the first half of last year.

Total crop supplies during the first half were little changed from a year earlier. However, crop prices averaged 5 per cent below January-June 1966. The decline was due to a record citrus crop and changes in the cotton support program that lowered the loan rate but increased direct payments to producers.

Livestock looking up. Total livestock output for 1967 is running well above year-earlier levels, perhaps 2 to 2½ per cent higher when the year-end total is tallied. Supplies of fed beef, hogs, broilers, turkeys, and eggs were up during the first half and prices averaged lower. But output is tapering off so that production gains over a year earlier likely will decline and livestock prices improve generally in the latter part of the current year.

Crop production record. Crop production in 1967 will probably reach a record high. The August 1 all-crop production index was 117 (1957-59 = 100)—4 per cent above last year and 2 per cent above 1965, the previous record. Wheat crop is estimated at 1.5 billion bushels, 15 per cent more than last year. Feed grains may reach a record 174 million tons, up 11 per cent. Soybean production is placed at a record 999 million bushels, 7 per cent above last year's crop. The 1967 cotton crop was estimated on August 1 at 8.3 million running bales, 13 per cent under 1966 and the smallest crop since 1921. Acreage of principal vegetables for processing is well above 1966. Total potato production is expected to be down one per cent from last year.

What's in storage. Level of wheat stocks declined again this year to 426 million bushels, the lowest since 1952. However, estimates for a 1.5 billion-bushel crop this year, domestic use near last year's level and exports of around ¾ billion bushels may result in a larger carryover next July. Soybean stocks on September 1 will probably be at a record high. Estimated August 1 cotton stocks are down close to 4.5 million bales from last year. The feed grain carryover into 1967/68 is now figured to be approximately 37 million tons—about 5 million below last year's. Privately-held stocks of corn are expected to be at a record high on October 1.

Wool prices. Shorn wool prices to growers during the first 7 months of 1967 averaged about 1/5 less than in 1966. Boston prices in April and May reached a low point for the season, then rose slightly in June. Additional strength may show up later this year.

Food prices dip slightly. Retail food prices in second quarter 1967 declined fractionally from the first quarter and averaged one per cent below the high point reached last summer. However, a continued rise in prices for restaurant foods

brought average retail food prices for the first half of 1967 one per cent above year-earlier levels. Higher wholesale food prices in recent months and anticipated slowdowns in livestock production suggest a moderate rise in retail prices that may continue to the end of the year.

The Marketing Bill, Farm Value and Civilian Expenditures, 1957-66

Year	Total marketing bill	Farm value ¹	Civilian expenditures for farm goods ²
	Billion dollars	Billion dollars	Billion dollars
1957	37.9	20.4	58.3
1958	39.5	21.5	61.0
1959	42.2	20.9	63.1
1957-59 average	39.9	20.9	60.8
1960	44.2	21.7	65.9
1961	45.1	22.0	67.1
1962	46.9	22.4	69.3
1963	48.9	22.6	71.5
1964	51.2	23.4	74.6
1965	52.1	25.5	77.6
1966 ³	55.3	28.1	83.4

¹ The farm value is the payment to farmers for the products equivalent to those sold to consumers. Values of inedible byproducts, nonfood products and exports are not included. In calculating farm value of wheat products, the cost of domestic wheat marketing certificates to processors was added to market price of wheat beginning in second half of 1964.

² Consumer expenditures for domestic farm-food products; excluded are expenditures for imported foods, seafoods, and other foods of nonfarm origin.

³ Preliminary. Note: Beginning with 1960, estimates include 50 states.

BEHIND THE NATION'S FOOD BILL

Civilian consumers spent \$83.4 billion for domestic farm-originated foods last year—7 per cent more than in 1965. Farmers' returns from these products rose to \$28.1 billion—up 10 per cent from 1965—while estimated total charges for transporting, processing, wholesaling, and retailing farm goods increased 6 per cent to \$55.3 billion in 1966—39 per cent more than in 1957-59.

About one-half the rise in the bill for marketing these foods was due to an 18 per cent increase in food sold since 1957-59. Rising wages,

depreciation, rent, taxes, and unit profits accounted for about one-third of the increase. Added services per unit of product raised the marketing bill 18 per cent. Increased service includes more meals eaten away from home, more convenience foods, and more transportation and packaging.

Labor lifts costs. The labor bill for assembling, processing and distributing farm-originated foods totaled \$23.4 billion in 1966—about 5 per cent more than in 1965. Labor, however, made up only 42 per cent of last year's marketing bill compared with 43 per cent in both 1965 and in 1957-59. Labor includes work performed by supervisors, managers, officers, proprietors, and family members as well as that performed by hired production and clerical workers.

There were 4.8 million such workers employed on a full-time equivalent basis in 1966—2 per cent more than in 1965. Most of the increase in labor was in away-from-home eating places. Hourly labor cost averaged 39 per cent higher in 1966 than in 1957-59 but this was partly offset by increased output per man-hour. Labor cost per unit increased only 14 per cent.

Waiting for the freight rates. The 1965-66 bill for shipping farm food products by rail and truck is not yet available. In 1964 it added up to \$5.1 billion. This was 10 per cent of the marketing bill as compared with 11 per cent in 1957-59. Railroad freight rates for agricultural products have averaged lower each year since 1958.

Overhead and other costs. An estimated \$8.6 billion of the marketing bill went for depreciation, business taxes, rents, interest, advertising, repairs, bad debts, and contributions in 1965. This compares with \$5.8 billion in 1959—an increase of 48 per cent. Such costs accounted for about 17 per cent of the 1965 marketing bill, only 14 per cent of the 1959 bill. Costs of packaging materials, fuel, electricity and many other commodities and services, which made up the remainder of the marketing bill, cannot be estimated.

THE CASE OF THE MECHANICAL TOMATO PICKER



Like most agricultural success stories, it takes a big package of many technologies to come up with an economical harvesting machine and to breed a crop that fits it.

"Package deals" are based on the premise that one thing leads to another. And it's a package of technologies that makes America's agriculture move ahead.

One new tool or technique by itself doesn't greatly affect our farmer's already efficient production or reduce his production costs much. But when the innovation is packaged along with other technological developments, almost anything is possible.

Like the mechanical tomato picker.

It's been over 25 years in the making. But by last year, it harvested between 60 and 80 per cent of California's 3,120,000 tons of processing tomatoes, worth \$112,320,000.

It nearly halved harvest costs for many California growers, who account for over two-thirds of the U. S. processing tomato crop.

Mechanized tomato picking owes its present degree of success to a package of technology: effective machines, specially-bred tomatoes, careful irrigation and fertilization, and special planting techniques.

Skills of engineers, botanists, and agronomists have also been required to wrap up the package.

The case history of the me-

chanical tomato picker runs like this:

—Pessimists in the 1930's said it would never work.

They pointed out that tomatoes are thin-skinned and bruise easily. That the vines tend to flower and set fruit over a period of weeks, and the fruit normally ripens the same way. That harvesting takes three or four hand pickings at intervals of one or two weeks.

—Optimists thought mechanization possible.

They said that tomatoes grow on low vines and the ripe fruit is readily identified by its color. That the yield per acre is large. And that vines can be grown in rows with space for a machine to go between them.

Then came World War II. Its

high prices, strong demand, and labor shortages rekindled interest in development of machines to pick tomatoes.

Two rather crude machines were reportedly in operation in 1941-42. One was used by a farmer in Lancaster, Pennsylvania, and another by a blacksmith in Holt, California.

The blacksmith's model was based on the idea of stripping all the fruit in a once-down-the-row operation. This is the basic principle of today's picker.

Meanwhile, a California tomato grower noted the obvious in 1942—that ordinary tomatoes weren't for mechanical picking.

He suggested to G. C. Hanna, vegetable specialist at the University of California (Davis), that the school develop a tomato suitable for machine-harvesting.

Thus—even before a machine was perfected—a search was begun for a tomato to fit the machine.

Researchers agreed that:

—The plants should blossom and set fruit at the same time and only once, and have a minimum of foliage.

—All fruit should be of high quality, be firm and crack-resistant, and have good vine-holding ability at maturity.

—Yield ideally should be big, 30 or more tons to the acre.

The plant breeders went to work, realizing that it generally takes 10 plant generations to perfect a hybrid.

In the late 1940's, Mr. Hanna came up with a pear-shaped tomato, well-adapted to machine picking.

Consumers, however, didn't like it. (For no very good reason, they mistrust pear-shaped tomatoes unless they are disguised as paste, juice, catsup, and the like.) So hybridizers therefore began to concentrate on a round type.

Meanwhile, creation of the pear-shaped tomato spurred serious work on a machine to pick it.

Engineer Coby Lorenzen and



others at the University of California started in 1949 to adjust and combine techniques of other agricultural machines.

Ten years later, they had a picker in field operation. By 1961, it was in commercial production and was used to harvest about one-half of 1 per cent of the California processing tomato crop.

In another part of the country, engineer B. A. Stout and horticulturist S. K. Ries, of Michigan State University, had also come up with a successful model.

At least half a dozen other machines, some of them experimental, were being tested by as many commercial firms during the 1960-62 period. And, despite variations, today's models incorporate the basic principles of the early ones.

When most of the fruit is fully ripe, harvesters move down the row cutting off the plants and lifting them onto an elevator.

A shaking device next separates the tomatoes from the vines and discards the plants. The fruit is then conveyed to a sorting area where green and spoiled fruit and earth clods are removed. The ripe tomatoes then move to a container—often a bulk box holding 500 to 1,000 pounds—and thence via trailer to processing plant.

There were problems, of course, at first. But most of them have been solved at least partially.

Though growers may lose 15 to 20 per cent of their tomatoes with today's machine harvester, the loss is no more than they suffer by hand-picking fields.

As for harvesting costs, in two major producing counties of California, surveyed in 1965, harvesting a ton of tomatoes with a machine cost an average of \$9.84. Hand harvesting cost an average of \$17.11.

The survey covered 15 counties in all, and 63 harvesters. Costs of mechanical harvesting included the machine, trailers to carry fruit from harvester to loading area, tractors to pull trailers, loading forklifts, and washing equipment.

The study showed that for all 15 counties, the average machine harvester crew picked .35 tons per hour, compared with .19 tons per hour by good field hands.

The mechanical picker used 61 man-hours of labor to harvest an acre of tomatoes yielding 21.5 tons. Hand picking for the same quantity took 113 hours of labor.

The package deal in mechanical harvest, however, needs more than a tomato and a machine.

Careful culture is a requisite.

As 12,000 to 18,000 of the small-sized hybrid plants can be grown per acre, they must be direct seeded rather than transplanted. Sowing in straight rows, with plants evenly spaced, facilitates machine picking and encourages even ripening of the fruit.

Fertilizer and irrigation are other parts of the deal. If either fertilizer or water are applied excessively or at the wrong time, blossoming and fruit-setting will be irregular, as will the ripening.

The case of the mechanical tomato picker hasn't yet reached its conclusion.

Sorting, still hand done, will doubtless be mechanized one of these days—either on the machine or at a separate mechanical sorting point. An automatic color detection-rejection system could be a factor.

Taking full advantage of mechanical pickers will mean more shifts to large-scale plantings, fewer growers with larger acreages.

Breeders will have to perfect suitable round-types if tomatoes are ever to be harvested commercially for the fresh market.

Consumers meanwhile might be wooed away from round tomatoes and persuaded that cylindrical ones are more efficient—and taste the same. (1)

Machines and Pesticides Alter Odds In Corn-Grain Sorghum Competition

Corn and grain sorghum are competing for planting honors in Nebraska.

A recent study of the methods of growing the state's two most important row crops was made by USDA and the University of Nebraska.

Today's farmer is faced with the problem of deciding which crop or what combination of crops will be more profitable.

The same equipment is used for both corn and sorghum, but the number of operations and the sea-

son in which they are performed vary.

For example, more of the land planted to corn is plowed than for sorghum. Also, corn is generally cultivated three times, sorghum twice.

Chemicals to control weeds before they start are used on about 11 per cent of the corn acreage and about 7 per cent of the sorghum acreage.

Control of weeds already up is more prevalent for sorghum crops with about 30 per cent of the acreage treated.

The big problem for corn producers is control of the corn rootworm. Because of the pest's highly developed resistance to common insecticides, about 55 per cent of the corn crop was treated with organic phosphates. At the time of the study there were no serious insect pests in grain sorghum. (2)

Double-Cropping on Model Farm Tests Allotment Levels for Rice and Cotton

Acreage allotments, starting back in 1955, haven't stopped Mississippi Delta farmers from growing more and more rice. Yields have been raised to such an extent that production under today's allotments is greater than production before the allotment program began.

But demand has not kept pace with yield increases and other crops are more profitable when prices for rice are low.

ERS economists, in cooperation with the Arkansas Agricultural Experiment Station, made a study to determine at which price and allotment levels farmers in the Mississippi River Delta of Arkansas, Louisiana and Mississippi might make changes in crop plantings with an eye toward higher profits.

A mathematical model of a 420-acre rice farm was set up. Linear programming determined optimum crop combinations at var-

ious prices for different allotment levels for rice and cotton.

The most profitable operation had rice and cotton at their current prices planted to the limits of allotted acreage. The remaining cropland was in soybeans and wheat.

The following production changes took place under certain price changes:

Rice and cotton allotments at base levels (1963 figures) and cotton and soybeans at current prices. Allotted rice acreage was planted as long as rice prices stayed above \$3.80 per hundred-weight. Below this price, soybeans, wheat double-cropped, became more profitable on the better drained clay soils. On poorly drained clay and mixed soils, rice remained profitable down to \$3.08 after which the land was in soybeans.

Soybeans at average long-term prices and cotton at current prices. Rice was partly replaced below \$3.23 by soybeans and wheat; below \$3.02, no rice.

Cotton at average long-term prices and soybeans at current prices. When rice dropped to \$3.80, soybeans and wheat became competitive with rice. Below this price and down to \$3.08, soybeans and wheat partly replaced rice. Below \$3.08, no rice planted. (3)

Seeding Clouds To Reap Rain Is One Way of Tampering With the Weather

Modern science now gives credence to the ancient goal of primitive tribes—to bring down rain from the sky.

The National Science Foundation recently reported to President Johnson that five years of testing had proven the feasibility of atmospheric "seeding" as a tool in changing weather.

The report comes 77 years after the Department of Agriculture first undertook rainmaking experiments.

On July 14, 1890, Congress

appropriated \$2,000 for the Forestry Division of the Department of Agriculture to experiment in the "production of rain."

The project wasn't launched until 6 months later, when Secretary of Agriculture Jeremiah Rusk put R. G. Dyrenforth in charge.

Dyrenforth's attempts to use explosives from balloons or kites in the Washington area provoked nothing more startling than heated complaints from the residents. So he moved out to Texas to continue his rainmaking tests in cooperation with the Navy

and War Departments.

Congress added \$7,000 more to the rainmaking appropriation in 1891 and \$10,000 in 1892. Private citizens also contributed funds. But in 1892 Dyrenforth reported that his work had proved little.

Meanwhile, the U.S. Weather Bureau—part of the USDA from 1890 to 1940—had generally turned a cold shoulder to the idea of tampering with the weather. But from 1947 to 1949 it cooperated with the Air Force, Navy, and National Advisory Committee on Aeronautics in cloud-seeding with dry ice or silver iodide.

By this time, pressure by both public and private interests prompted Congress to establish an Advisory Committee on Weather to evaluate tests and the need for regulative control.

On July 11, 1958, as a result of the Committee's findings, Congress authorized the National Science Foundation to conduct experiments in weather modification and make annual reports to the President.

(Some other countries have already used rainmaking techniques with success—see page 24, this issue.) (4)

FARM INCOME STATISTICS:

Some of the most quoted—and misquoted—of all statistics are the U.S. Department of Agriculture's national farm income figures. USDA publishes regularly a comprehensive set of income estimates relating to agriculture. The major series, along with other important series from which they are derived, have been developed over more than a third of a century. Each series, whether major or minor, is designed for a specific purpose. For accurate results it should be used only in the way it was designed to be used. Unselective use is a common cause of error. Many figures may be vaguely reported as farm income—cash receipts, realized gross income, total net income, for example. Yet there are billions of dollars worth of difference between them. USDA's estimates center around two major concepts of farm income: One views agriculture as a business or an industry and measures income from the job of farming. The other views the people who live on farms and measures their income from both farm and nonfarm sources. The major series in each classification and their relationship to other series are shown here (5)

INCOME FROM FARMING, 1966

Billion Dollars

CASH RECEIPTS FROM FARM MARKETING Money received from sales of about 150 farm products.	43.2
GOVERNMENT PAYMENTS TO FARMERS Payments to farmers under farm programs. Net price support loans are included with cash receipts above.	3.3
NONMONEY INCOME Includes home consumption of farm products and imputed rental value of farm dwellings.	3.2
REALIZED GROSS INCOME FROM FARMING Income from farming available for all purposes—farm operation, family living and investment.	49.7
PRODUCTION EXPENSES All cash spent to operate the farm business, plus certain non-cash items. Includes depreciation of equipment and other capital items rather than current purchases of these items.	33.3
REALIZED NET INCOME USDA's standard net income figure. The word "realized" indicates that the figure has not been adjusted for changes in inventories. Represents return to operator for his labor and management, the labor of his family and his invested capital.	16.4
NET CHANGE IN INVENTORIES Difference this year from last in quantities of each crop and livestock product held on farms, valued at average prices received by farmers during the year just ended.	0.2
TOTAL NET INCOME This figure is a component of national income figures of the Department of Commerce. It is published in the national income reports of that Department as "net income of farm proprietors."	16.2

PERSONAL INCOME OF FARM POPULATION, 1966

Billion Dollars

PERSONAL INCOME FROM FARM SOURCES:	
TOTAL NET INCOME FROM FARMING OF FARM RESIDENT OPERATORS This is the total net income of farm operators from farming minus the net income received by farm operators who do not live on farms.	13.9
FARM WAGES OF LABORERS LIVING ON FARMS Wages and other labor income for farmwork paid by farm operators out of their gross income to workers living on farms. These wages are a production expense to farm operators, but a source of income to the farm population.	0.8
CONTRIBUTIONS OF FARM RESIDENT OPERATORS AND WORKERS TO SOCIAL INSURANCE	0.3
TOTAL PERSONAL INCOME OF FARM POPULATION FROM FARM SOURCES	14.4
PERSONAL INCOME FROM NONFARM SOURCES: Includes wages, salaries, and other labor income of farm residents from nonfarm jobs, rents and royalties, dividends, and interest, net income from nonfarm business and professions, and transfer payments, such as unemployment compensation and social security.	6.9
TOTAL PERSONAL INCOME OF FARM POPULATION FROM ALL SOURCES	21.3

Details of Farm Debt in 1966 Show It's Big in Size, Widespread in Use

Farms today are larger, more efficient than in 1945. Their credit needs are bigger, too. Here briefly are details of the farm debt situation:

It's bigger and slightly better. Total farm debt in 1966 amounted to \$41.6 billion, compared with only \$8.3 billion in 1945. But despite the fivefold expansion during the period, there was no sign of deterioration in quality. Last year debts amounted to 17 per cent of the value of farm assets; in 1945 they amounted to almost 19 per cent.

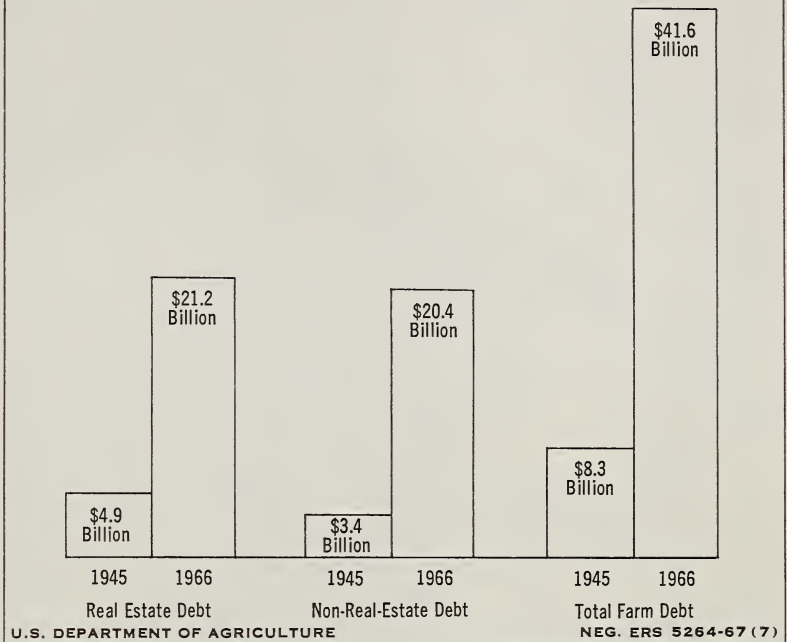
Everybody's doing it. Over two-thirds of the commercial farmers in the U.S. today use some type of credit, either to increase the size and efficiency of their operations or to pay the higher unit prices on many purchased inputs.

Fifty-fifty split. About half the total farm debt in 1966 was secured by farm real estate, half was not. Real estate secured loans generally had the longest terms (ranging up to 30 years or more) and were transacted chiefly for financing land, buildings or real estate improvements (land leveling, drainage or irrigation). Non-real-estate loans were usually to be repaid within a year and were for financing purchases of feed, fertilizer, livestock, machinery and other production inputs.

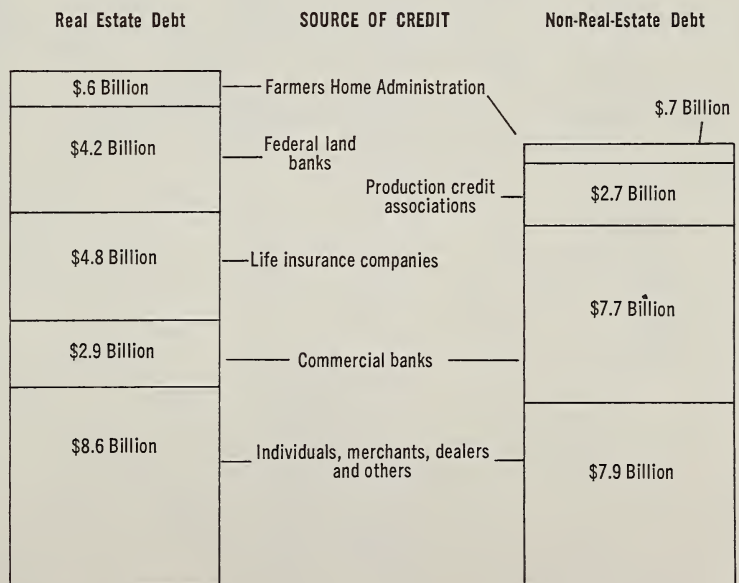
Leading lenders. Private individuals were the No. 1 source of real estate credit, providing about 40 per cent of the total in 1966. Life insurance companies and the federal land banks each provided another 20 per cent of the real estate secured debt.

Merchants, dealers and other individuals were the largest single source of non-real-estate credit, providing about 42 per cent of the total last year. However, commercial banks provided almost as much, about 40 per cent of the total in 1966. (6)

FARM DEBT SOARS IN POSTWAR PERIOD AS FARMS GROW BIGGER, MORE EFFICIENT



INDIVIDUALS PROVIDE LARGEST SHARE OF TOTAL FARM CREDIT IN 1966 ¹



¹ As of January 1. At the beginning of the year the amounts of loans held by short-term lenders tend to be low on a seasonal basis. Consequently, January 1 total is smaller than total for entire year.

U.S. DEPARTMENT OF AGRICULTURE

NEG. ERS 5265-67 (7)



MAJOR PROBLEMS FOR A MINORITY

Despite a rich cultural history, Americans with Spanish surnames sometimes find that tradition may insulate them from the benefits of the surrounding "Anglo" society.

Less than \$3,000 a year—that's the dollar sign of poverty for a family with growing children.

And more than half the rural families with Spanish surnames had to make do with no more than that. Almost a third of the urban families with Spanish surnames subsisted on just that income.

A new report by the Economic Research Service explains some of the causes for the high percentage of marginal income in this group.

Education: The early dropout rate of this population group is one of the highest in the nation. Take Texas. In 1960 rural males with Spanish surnames who did not work on farms had a median of only five school years completed. In California, New Mexico, Arizona and Colorado they had seven to eight years.

In Arizona those who worked on farms averaged less than three school years completed; those in Colorado, up to eight.

Other factors that help explain the low educational level are:

—About 15 per cent of urban people with Spanish surnames reported no schooling at all.

—When persons having no more than four years of education are added to the group with no schooling at all, functional illiteracy for the Spanish-surname group varies between 15 and 37

per cent in the Southwest.

The school attendance figures are especially important because school is almost the only place where the children learn standard English.

Cultural traits: Resistance to learning English and other so-called "Anglo ways" is partly responsible for the poor educational attainment of the group.

Large, patriarchal and cohesive families are a distinctive characteristic of the group. None of these qualities was a disadvantage in the earlier, agrarian context of Southwestern life.

But in a modern industrialized economy the exclusiveness of the extended family tends to limit contact with the rest of a pluralistic society.

Occupational pattern: Inadequate knowledge of English has severely restricted employment opportunities. Many of the more capable and ambitious members

of the group have found it extremely difficult to work their way up the occupational ladder—even with on-the-job experience.

In the rural population, almost half the employed males worked as farm laborers, compared with about 15 per cent of the total rural population of the Southwest. This concentration in the farm labor category accounts, in large part, for the overall low-income status of the group. The wages are low and the work is seasonal—resulting in frequent periods of unemployment.

But in spite of continued concentration in laboring and other low-paying occupations, there has been some improvement.

Between 1950 and 1960, proportions of the labor force in professional and clerical groups and in the crafts and service occupations increased, while proportions in farm and nonfarm labor declined. (7)

Vacation Cabins Seldom Prove To Be Treasure Houses for Renting Owners

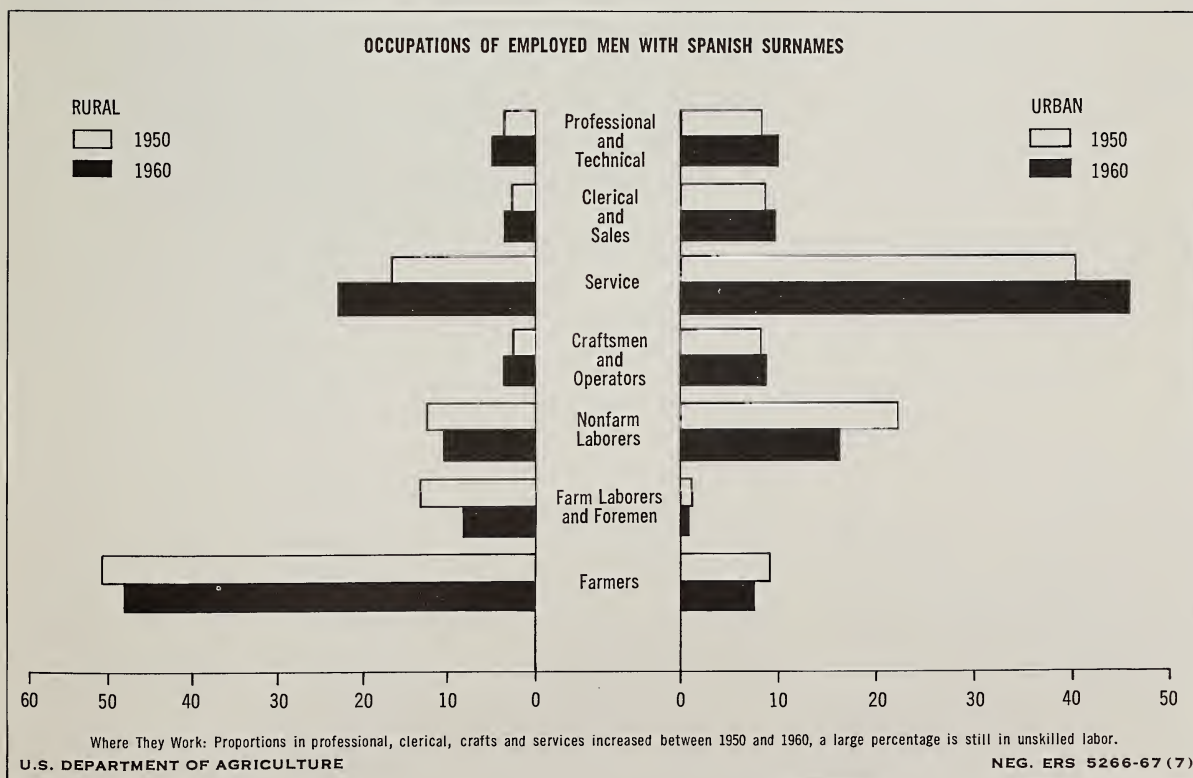
Take a cabin. Put it on a lake-shore. Locate it in the "Near North" of Wisconsin.

The result should be an idyllic setting for a recreation business. But most owners of such enterprises are now struggling for financial survival.

The odds are against them, judging by a survey of 47 small cabin resorts clustered around the shores of Pelican, Pickerel, Post and nine other lakes in the northern part of the Badger state.

The business of renting vacation cabins in this area is characterized by large investments and low returns.

Of the resorts surveyed, only the five largest (with at least 10 cabins) show any net profit after deducting expenses, interest on capital invested, and depreciation.



Even then, the profit averaged out to only \$410 annually.

Why don't the other cabin resort owners give up? Probably because their lake sites have almost doubled in value since their purchase.

Most owners are thus still in a favorable position when it comes to net worth or equity. But there is a growing tendency for them to fragment their sites into individual lots and sell off the valuable lake frontage.

Some of the cabin resort owners, however, want to stay in business even though profits are unlikely to be more than a supplement to family income.

Investment-cost-returns studies suggest the following measures for operators who would like to increase their net resort income to \$5,000 a year:

- Expand to at least 30 cabins that will rent for \$85 weekly during the 3-month summer season;

- Diversify to include camping sites;

- Extend seasonal demand by adding such facilities as a snow-mobile course;

- Upgrade quality of all services (cabin furnishings, plumbing, and other equipment). (8)

Arkansas Rural Youths Must Either Try Harder or Lower Career Sights

If the local youths have their way, there may be six times as many entrants into professional, technical and kindred occupations in two rural Arkansas counties as there are into farmer and farm laborer jobs in 1970.

Such are the indications of a survey of 197 senior boys in high schools in the area. Some 42 per cent of the boys in the survey of aspirations and capabilities saw their futures in terms of professional type jobs.

The aspirations of these youths—who were from a lower income rural area—did not differ significantly from those of a group

of boys from higher income urban areas of Michigan.

Nationally, professional workers make up only 12 per cent of the work force. They will amount to no more than 14 per cent of the work force by 1970 when, presumably, these students would have completed their anticipated post-high-school education and training.

A number of young rural people in Arkansas may be in for disappointment, if the survey is an indication.

Their reading skills, for example, were below the national norm according to the test. Thus, scores on the capability tests for many didn't come near living up to their aspirations.

Seventy per cent of the Arkansas youths surveyed, in fact, chose future occupations deemed beyond their current capabilities. Most, however, planned further education and training after high school to up their capabilities.

Students (12.1 per cent of them) who said they wanted to be craftsmen or similar type workers came closest to matching the projected national opportunities (12.8 per cent of the work force) for such work in 1970.

Those who chose agricultural occupations—farmer, farm manager and farm laborer—represented a slightly greater proportion of the group than the projected 1970 needs of the U. S. will likely warrant. However, since one-third of the students live on farms and the region of the survey is primarily agricultural, their plans are probably reasonable.

Otherwise student plans in all other categories were below projected national needs for 1970.

Suggested remedies for this situation include special reading courses, information on requirements and opportunities of various occupations, special guidance services and training programs for students with low capabilities. (9)

Economies of Wisconsin Resort Areas Are Given Boost by Retired Citizens

Booming from June to September, boarded up the rest of the year. Such is the fate of many recreation areas with facilities geared to young families.

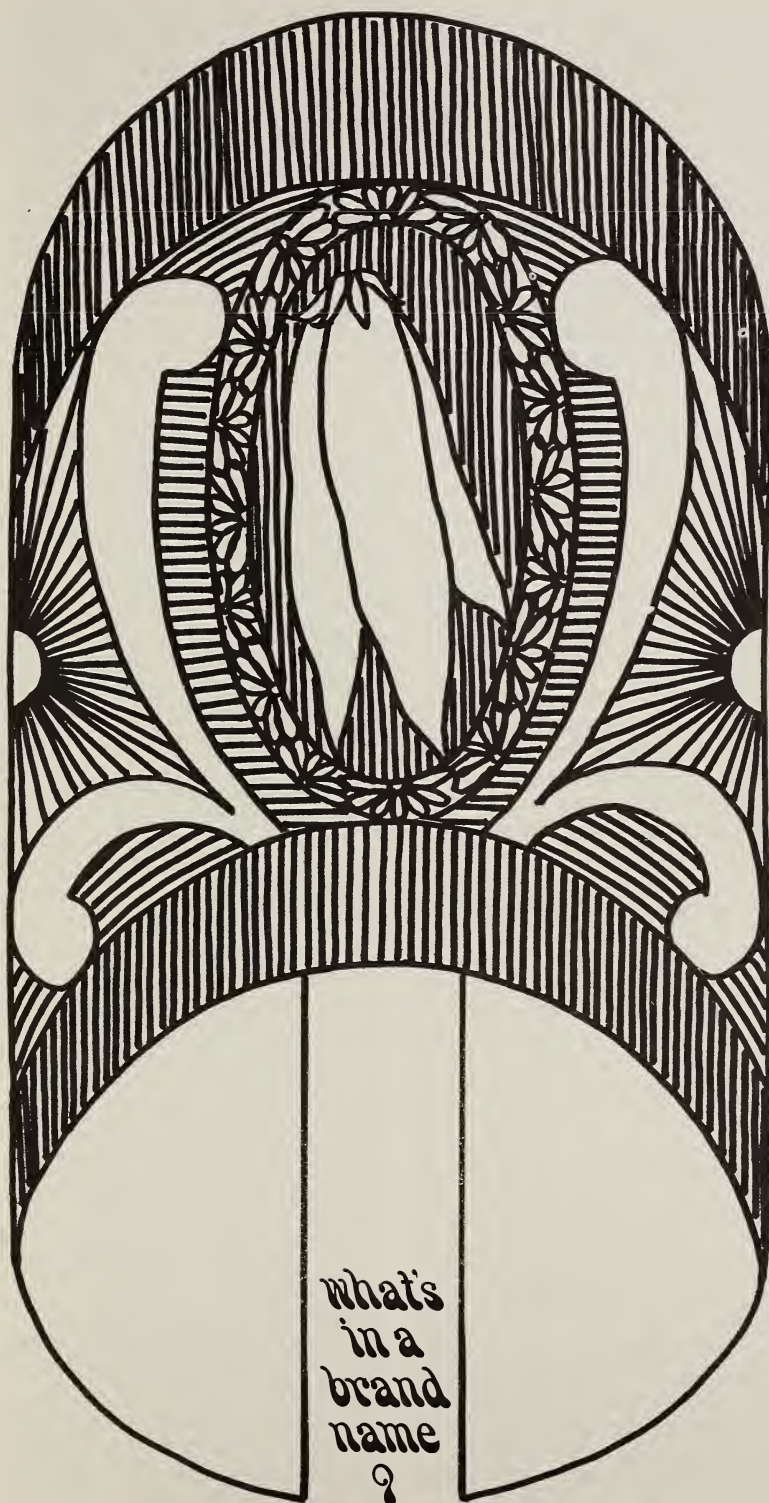
But the woods and water vacationland of Vilas and Oneida Counties, Wisconsin, is a bustling community year-round. Why? Because it is the nucleus of a rapidly growing retirement community—most of whose members live there year-round.

Just how much retirees can add to local communities is illustrated by a recent ERS study of 143 retirement households in the two-county area. About half of the retirees were native to the area; the rest had moved there because they thought it would be an ideal place to live when retired.

Financial information obtained from the 143 households indicated many of the retirees—especially those from outside the area—were in a relatively strong financial position. More than a third (most of them immigrants) had a net worth of \$50,000 or more. Only 20 per cent (mostly natives) reported a net worth of less than \$10,000. The retirees' income averaged about \$3,000 for natives, \$7,000 for immigrants in 1965. About 90 per cent had no debts.

Many of the retirees reported substantial investment in real estate. Four-fifths owned their homes outright. The average value of the retirees' homes was \$13,000; however, more than a fourth were valued by their owners at \$30,000 or more. Their real estate taxes averaged about \$235.

Fifteen per cent of the homeowners spent \$600 or more improving their homes in 1965. And 39 per cent made capital purchases for furnishings. In addition, each retired household spent an average of \$855 on food in 1965, \$250 on medical care, and \$380 on other items. (10)



Would foods by any other names taste as sweet? Consumers prefer the nationally-advertised brands but retailers' and wholesalers' private label products are thriving.

Cowhands in the Old West used a brand burned into the haunch of an unsuspecting calf to help avoid disputes between rival cattle barons.

Modern food merchandisers use brands to identify their products and to differentiate them in the minds of consumers. Thus, rivalry for the consumer's choice between food products sold under manufacturers' advertised brands and those sold under retailers' or distributors' private labels takes place on the supermarket shelf.

In fact, this rivalry is an important aspect of competition in the food industry today.

Except for certain perishable foods such as fresh fruits and vegetables and fresh meat, most foods are sold under one brand name or another.

And each manufacturer spends thousands to millions of dollars on advertising and promotion to establish strong consumer preferences for his particular brand.

At the same time, because they are able to control the shelves from which consumers make their selections, retailers market products under their own private labels without incurring the huge advertising and promotion costs of the nationally-known brand names.

Close to 85 per cent of food chains now handle private label grocery products. Over 90 per cent of voluntary wholesalers and 80 per cent of cooperative wholesalers carry private label lines while only 40 per cent of independent wholesalers do.

But for most firms private label sales represent less than 25 per cent of total sales. In retailing, the trend is for the larger firm to have the greater volume of private label business. With whole-

salers it's just the opposite: smaller operators use private labels more extensively than larger wholesalers.

The best-selling or high volume standard categories of products are likely to be selected for private label lines. For example, the most popular candidates for a retailer's or distributor's own label are canned fruits and vegetables, dairy products, eggs, oleomargarine, bakery products, coffee, salad dressing and mayonnaise.

A study of products added or subtracted from private label lines indicated that those added generally show rapid sales growth as brand name items—potato chips, cake mixes and vegetable oils, for example. Most frequently eliminated from private label lines were jams, jellies, and coffee. (Coffee was also mentioned among the products most frequently added.)

Based on the number of distributors reporting purchases of private label products from dual brand manufacturers, it would appear that producers of frozen orange concentrate, coffee, canned fish, evaporated milk, catsup and cake mixes are among those least willing to sell products under private labels.

On the other hand, a high proportion of fluid milk handlers are apparently willing to sell under both their advertised label and the private label of the distributor.

When asked why they sell private label products, the number one reason given by retailers was to develop consumer loyalty to a line of exclusive products.

Meeting the competition of other stores who carry private label merchandise came second as a reason, while the fact that they are more profitable was given as only the third most important reason for selling private label products.

Are average retail prices on private label merchandise lower

than advertised brands? Yes, in almost all cases. In 10 representative product categories the price of the most popular advertised brands averaged 21.5 per cent higher than the comparable private label item.

Average retail prices for the advertised brands do not show as much variation as do private label prices. For example, in a recent study, private label canned green beans ranged from a low of \$3.62 per case to a high of \$6 per case. One advertised brand carried by 10 retailers varied only from \$5.86 per case to \$6.96 per case.

Transportation costs make up most of the variation in the cost of nationally advertised items among chains. But each chain may have a different source of supply, different quality specifications and other factors that cause wide cost variation in their private label items.

Differences in merchandising practices followed by retailers with respect to private labels may also be reflected in the wide variation found in their retail prices.

Also, with the exception of catsup and cling peaches, retailers regularly run more low priced specials on private label products than on advertised brands.

The average gross margin is 2.4 per cent higher on private label merchandise than on advertised brands, with wide variation among products and an even wider variation among chains.

Gross margins for private labels averaged 26.6 per cent at their usual price. When price-featured, these gross margins are reduced an average of 12.7 percentage points. Nearly a quarter of the price-featured private label items have a gross margin of 10 per cent or less.

What does the consumer think of private labels? Half the men and women interviewed in one survey felt that people who buy less well-known brands do it because those brands are lower priced.

The next most important reason given for buying private label foods was curiosity and desire for change. A small percentage said they thought the less well-known brands were as good as the advertised brands.

Thirty-four per cent of the women strongly preferred well-known brands while 14 per cent preferred less well-known brands. The rest indicated that they based their choice on experience and other factors, not rigidly selecting one brand every time. (11)

TV Puts Snap in Cereals; Cracker, Cookie Sales Don't Crumble Without It

Breakfast cereal companies spend about 15 per cent of sales on advertising—mostly on television. And they would lose a lot of sales if they didn't.

Cookie and cracker manufacturers, on the other hand, spend little on advertising—only 1.7 per cent of sales. They rely primarily on their salesmen to sell the grocer or the supermarket chain buyer.

Yet both industries are above the food industry average in profits. And both exhibit trends toward increased profits.

Why the difference in their approach to the consumer?

The breakfast cereal manufacturers and the cookie and cracker companies represent extremes in concentration among grocery manufacturers although concentration in both groups is high.

The cereal industry is basically six companies that distribute nationally, while the cookie and cracker industry is made up of many firms that distribute locally or regionally.

The four largest cereal companies have increased their share of the market from 80 per cent in 1958 to 85 per cent in 1964.

The four largest cookie and cracker companies account for less than two-thirds of the total market. Their share has re-

mained fairly constant since 1958 but the next 16 largest showed trends toward increased concentration.

New products, new product differentiation and nationwide advertising are the keys to increasing dry cereal sales. New products are tested at various prices, with nationally branded items generally commanding the highest prices. Any decrease in advertising alone would probably result in lower prices and also lower consumption.

Cracker and cookie companies spend significantly less on new products research and usually price their products in line with currently accepted market prices.

Net profits are increasing in the cereal industry with the largest firms showing the best ratio of profit to sales. The same general trends exist in the cracker and cookie industry, although profits are at a significantly lower level. (12)

Bread Is Still the Staff of Life for Nation's Milling and Baking Industries

Bread may no longer be the staff of life for many of today's affluent Americans. But it's still the mainstay of the milling and baking industries.

Except for a rise in flour exports, the total demand for milling and baking products has remained relatively static since 1954.

Yet bread, bread-type rolls and sweet yeast goods still account for 87 per cent of the total quantity and 74 per cent of the total value of bakery product shipments.

Milling. Since 1948 there has been a decline of over 50 per cent in the number of flour mills. The remaining mills now operate at an average of about 94 per cent of capacity with annual production in 1964 amounting to 265,621,000 hundredweight.

In the North Central region, with over half the nation's ca-

capacity, the 20 largest firms used 22 per cent of the flour and mill feeds in further processing consumer items such as cookies, crackers and breakfast foods.

A sample of 74 mills showed that plant assets at the beginning of 1956 averaged \$132 per hundredweight of daily plant capacity. By 1965 this figure was \$177.

Some of this increase is accounted for by the introduction of bulk selling and distribution of milled products, pneumatic handling equipment, and equipment for segregating flour particles by air classification technology.

Profits before taxes averaged only 1 per cent per hundredweight of product sold in 1964-65—only 0.22 per cent of sales, based on reports from 78 plants milling hard wheat.

Losses of 11 cents per hundredweight were sustained by the highest capacity size grouping, of 1 cent per hundredweight by the next to lowest capacity size grouping. The smallest and medium-size groupings had profits of 11 cents per hundredweight of product sold.

Baking. In 1963, a 17-city sample showed that the top four brands of white bread in each market accounted for 39 to 92 per cent of sales.

Moving the bread from the bakers' platform to the consumer today costs almost as much as it does to grow the wheat, mill the flour and bake the bread. A loaf of bread that cost 11 cents at the bakers' dock in 1964 sold for around 20 cents in the retail store.

Selling and delivery costs as a share of net sales rose from 30 to 35 per cent from 1956 to 1965 while ingredient costs dropped from 35 to 31 per cent.

In 1964-65 net profits on bread and bread-type rolls before taxes, were 4.3 per cent of sales, 27 per cent below 1960-61. Profits of six large baking companies, after taxes, were 2.8 per cent of net sales in 1964. (13)

"Just Heat and Eat" Costs More but Housewives Are Willing To Pay for It

A modern career girl, working wife or busy mother would no more think of bringing home only plain, unprepared foods than she would think of riding in a Model T to the supermarket to buy them.

But she's paying a premium for the privilege.

The retail value of food in 1966 averaged almost 6 per cent higher than in 1965, virtually all of the gain due to higher costs between the farmer and the consumer.

The new "just heat and eat" convenience foods represent a substantial portion of these rising costs.

Recent research indicates that Mrs. Consumer's demands for convenience foods have increased two to three times faster than the demand for the basic food itself from the farmer.

Result—a long term decline in the farmer's share of the food dollar, an upward trend in the cost of transporting, processing, packaging, storing and otherwise servicing the food from farm to consumer.

In 1966 these costs amounted to \$55 billion, about 6 per cent more than in 1965.

This is equal to twice the value of the food at the farm or 66 per cent of what Mrs. Consumer had to pay for the food.

As these costs increase, so does pressure to find ways of reducing them. Marketing firms, for example, partially offset rising labor costs by stepping up output per man-hour. Over the past 20 years, output per man-hour has increased an average of 2.8 per cent per year.

Innovations in freight rate making and adoption of new equipment have brought about a downward trend in the cost of rail transportation for farm products since 1957-59—an average decline of one to two percentage points a year for the past 10 years. (14)

Changes in Selling Eggs and Chickens Occur as Poultry Industry Modernizes

The business of getting chickens and eggs from the farm to the consumer is changing every day.

Decades ago, the poultryman, in a small and decentralized industry, was pretty self-sufficient. He kept a breeding flock, hatched his own chicks, made his equipment, hand-mixed feed, sold live or dressed birds and hauled eggs and poultry to local markets. Some even did their own experimenting with hybridization, feeds, remedies and management techniques.

Gradually, this general endeavor was superseded by a series of specialized but separate enterprises. As better technology developed, separate production and marketing units became feasible. Breeding and hatching functions left the individual farm, feed mixing passed to commercial mills. Poultry slaughtering and egg packing plants dispatched trucks to the farms to pick up supplies. Public agencies and private firms took over most of the scientific research.

Then the tide began to run the other way. The need to reduce costs, increase efficiency and standardize the product led to a reconsolidation of the functions and contract production began to spread. Connections were established between the processing and packing operations, the feed supplier and the hatchery. Direct contact was made with the buyer, frequently by-passing the old terminal markets.

What does the future hold for the poultry industry?

There will probably be increased coordination of producing, input-supplying and marketing functions. This will lead to a more efficient use of managerial talent, a lower total cost per unit of finished product and output more closely aligned with market requirements.

Economies of scale exist in production, hatchery operation, feed milling, egg packing and poultry processing. To realize possible savings, fewer and larger units will continue to supplant larger numbers of smaller units.

New methods of management and record keeping will be used more often. Teams of experts will pool their knowledge to solve problems arising in a firm. Automation will be used as much as is efficiently possible.



The marketing of further-processed items such as frozen, cooked poultry and convenience products made with liquid, dried or frozen eggs will also expand and lead to greater use of brands and a new competitive environment.

There will be a greater effort to differentiate among traditional products. New packages, new ways of display and more preparation of the foods for the housewife may be in the offing.

Such developments would lessen price competition and place greater emphasis on nonprice forms of competition.

The pricing system for poultry and eggs doesn't go along with the reality of the marketplace any more.

Live poultry sales, on which the system is based, are becoming fewer and fewer. Price bases are shifting toward the ready-to-cook form of poultry since, in many cases, poultry is handled by one firm all the way from the poultry farm to the supermarket shelves. The first time price comes into the picture is when the processor sells to the retailer.

Changes are also becoming necessary in the egg pricing systems currently being used, and the Department of Agriculture is considering ways to improve the present pricing system.

The trend toward further-processed and convenience items will make necessary even more shifts in the pricing mechanism.

The South and Midwest will remain the important centers of industry production. Production units in these regions will move closer to supply and processing operations and additional mergers will occur.

More new ways of performing various jobs in production and marketing can be expected from continued expenditures on research and development. Many of these methods can best be adopted by large units. But with the trend toward fewer and larger units, new technology will enable the industry to keep costs down. (15)

Midwest Is Still No. 1 Egg Basket, But California and Dixie Close in Fast

In times gone by, the farmer's wife fed the chickens, raided their nests, and sold the eggs. Her egg money was a welcome addition to the farm. She bought curtains and rugs with it, and sometimes the egg money helped the

farmer scrape through a rough year.

Eggs have long since graduated from the pin-money category. Large producer-marketing complexes are devoted solely to raising chickens and selling eggs.

The West and South are areas of efficient, modern egg-marketing and production methods. The Southern industry has arisen as a major enterprise only in the past few years.

The Nation's leading egg producer, California, went from an egg-importing state to a state with eggs to sell. In 1964 it produced 5.3 cases per person over what the Californians could consume.

Or take Arkansas, Mississippi, Alabama, and North and South Carolina. In recent years they have emerged as egg exporting states with surpluses ranging from 0.6 million cases for South Carolina to 3.8 million for Georgia.

Ironically the area most lacking in a modern egg industry is the Midwest, often called the nation's egg basket. Its old and well-established egg industry has largely maintained a "wait and see" attitude toward modernizing.

Meanwhile it has lost a sizable share of its markets to the new streamlined competition.

Some of the problems that the Midwest faces—

Small flock size: In 1959, 80 to 90 per cent of the birds in the Lake States, Corn Belt and Northern Plains were in flocks of less than 1,600 birds, and flocks of under 400 accounted for 50 to 70 per cent of the birds.

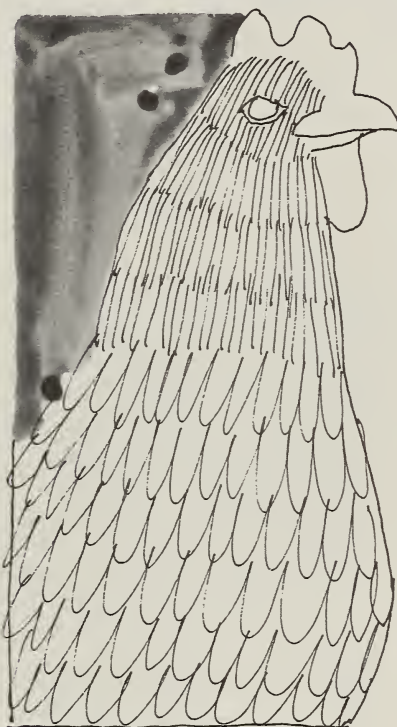
Although the number of small flocks has decreased since then, they still constitute a problem in marketing. More egg lots have to be handled and there have to be many more individual lots of chicks and feed delivered than with large flocks.

The results—more expensive egg assembly, a more scattered and complex distribution of feed

and chicks, higher packing plant costs and lower egg quality.

Increased competition: The South used to be an egg-deficit area where many a Midwestern egg was eaten. Now, it not only produces its own eggs; it is also a competitor in the egg deficit Northwest.

Outlets: The Midwest has always been the center for egg breaking and drying. In 1960, 92 out of 105 U. S. plants producing frozen eggs under Federal



inspection were in the Midwest. By 1965 the number had dropped to 63 out of 96 plants. During the same period, the number of frozen egg plants in the South rose from 7 to 23.

Whether the Midwest will lose more of its markets depends on its willingness to invest in new production and marketing systems, availability of investment funds, and evaluation of profit opportunities in egg production versus other alternatives. (16)

Mark October on Your Calendar: The Month When Nation Salutes Co-ops

When a cow becomes part of a co-op, it's in business—as evidenced by more than 1,350 U.S. dairy cooperatives whose annual marketings have a net value of over \$3.8 billion.

Representative of these co-ops and thousands of others that market food and fiber produced by farmer-members—and obtain supplies for them—will participate in Cooperative Month '67 observances in October.

There will be special Washington, D. C., displays and programs throughout the month. Participants will include the international Food and Agriculture Organization (FAO), the USDA, 11 other U.S. government agencies, and 9 national organizations representing all types of co-ops.

Since informal cooperatives began in 1794—when east coast farmers coordinated cattle drives—co-ops have become one of American agriculture's primary assets.

—Five out of six U.S. farmers now go through 8,500 marketing and purchasing co-ops to do \$20 billion worth of annual business.

—Over \$8 billion a year is loaned to farmers and their cooperatives by banks and associations of the Farm Credit System.

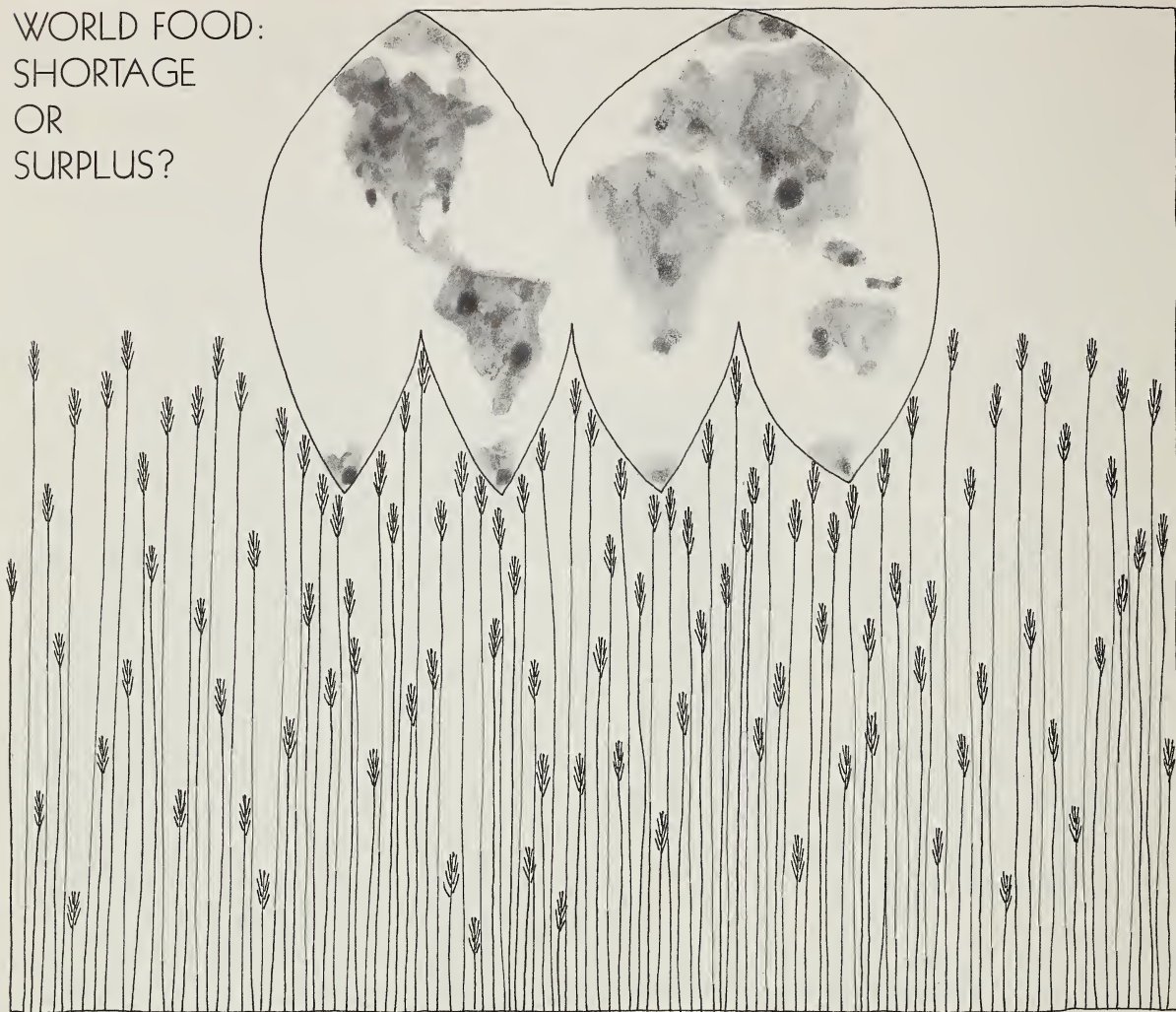
—Rural electric and telephone cooperatives, numbering 1,200, bring electric service to 6.3 million consumers and telephone service to more than 600,000 farm families and other rural people.

—About 18.4 million members of 22,700 credit unions have savings of \$10.3 billion and loans of \$9.2 billion (as of April 1967).

—The 560 cooperative housing projects include over 80,000 individual units worth over \$1 billion.

—Water for about 25 per cent of all irrigated land in the U.S. is supplied by 7,000 mutual irrigation companies with a membership of over 150,000 farmers. (17)

WORLD FOOD: SHORTAGE OR SURPLUS?



The world can produce enough grain to meet global demand, says a new study, but victory over hunger will require continued food aid and accelerated farm progress in the less-developed countries.

When the world's population sits down at the global dinner table in the year 1980, what kind of a meal is it likely to be?

A recent study of the world food situation using a set of projections on world grain production, consumption and trade provides the basis for at least an

outline of the answer. It indicates that in 1980:

—The developed nations of the world will sit down to an adequate dinner table (though as always some citizens will not get a square meal). These nations also will have large quantities to export.

—The developing nations as a group will probably still be short of food needed to meet minimum nutritional standards. But assuming some continued gains in production in the developing nations, the combined world output of grains can avert starvation

and even provide for some continued improvement in diets generally.

—The world as a whole will have the capacity to produce more food than is necessary to meet the effective world demand—both commercial demand and aid program requirements. The developed world will have the capacity to produce more than enough grain to meet these demands even if the developing nations do not achieve any faster growth in production than in the past decade.

We may still be faced with surpluses in one part of the world,

shortages in another. The problem will not be one of absolute shortage of production capacity, but one of distribution among exporting and importing countries.

The study emphasizes that in 1980 the world food problem will continue to be basically one of disparity of food production and food availability between the developing and developed nations. It is inseparable from the development gap between rich and poor nations.

In other words, distribution of total supplies rather than lack of production capacity will continue to be the crucial problem.

—Food aid will continue to be needed until agricultural production and economic growth are accelerated in the less-developed countries and have reached a level at which these countries can produce or purchase commercially enough food to meet their needs.

—Only if the less-developed countries increase their levels of agricultural productivity to 4 per cent annually—a rate achieved by only a few undeveloped countries—could they achieve a high enough rate of economic growth to reach a desirable minimum caloric level for their people and break their dependence on food aid.

This would require unprecedented increases in resource commitments to agricultural development. It would require massive efforts not only by the developing nations but also considerable assistance from developed countries.

In the study, grain is the common denominator used in the projections of world food supplies and demand and in measuring the possibility of winning the war on hunger. Why grains?

—Grains directly supply over half of all the food energy the average man gets, although this varies, depending on whether he's harvesting wheat in Idaho, weaving rugs in Iran, tailoring suits in Hong Kong, or branding cattle in Argentina.

A large part of the other half of body fuel comes from meat, eggs, milk, cheese, and other products of animals which eat grain.

This study looks at the developed and less developed world separately with respect to grain-importing and grain-exporting nations. It then combines the two to determine the grain prospects for the world. This approach enables us to evaluate the supply and demand prospects in each and to assess the probable trade in grains—both commercial and non-commercial.

The world grain supply is projected to 1980 based on three different sets of assumptions with respect to increase in economic development and the related increase in grain production by the LDC's. The study does not attempt to predict grain output but rather to explore the conse-

quences of three different rates of improvement which cover the range of likely outcomes.

One assumption is based on recent *historical* grain production and consumption trends, in the less-developed countries (LDC's). The second assumption is for a *moderate* improvement; and the third for *rapid* improvement over the historical trends.

All assumptions use the same rate of population increase. But different rates of increase in per capita consumption are used, depending on the levels of economic development.

For the developed world, only one set of projections is made. This is based on the most likely rates of growth in grain production and consumption assuming world market prices remain at about the average levels of the past three years. For the United States, harvested grain acreages are assumed to be 186 million acres in 1980 (compared with about 165 million acres in 1967 and 184 million in 1958-60).

These assumptions enable us to project the surpluses or deficits that may result from the assumptions employed, and to examine the adjustments that may be needed in production, consumption, and trade.

Whether or not there is an *actual* surplus of grains depends on how the production capacity is used, which in turn depends on production and trade prospects, and government policies.

In calculating any projections, as the study points out, certain risks, such as weather or unforeseeable acts of fate or man may invalidate the projection.

Market changes of all kinds throughout the world can, of course, be expected. As in the past, they may result from technological advances or changes in national policies.

Here's how the prospects shape up under each alternative assumption in this study of the world's food situation:



HISTORICAL TRENDS ASSUMPTION

IF: Grain production between now and 1970 in all the less-developed grain-importing countries does not increase any faster than it did between 1954 and 1966 (2.5 per cent annually);

OR

India and Pakistan (recipients of nearly one-third of total LDC grain imports) step up their grain output as expected in the next two years, but there is no acceleration in output rate of the other LDC's.

Under the first set of circumstances, world grain production capacity exceeds demand by 30 million metric tons. This would be the amount left over after supplying world demand, including the needs of the less-developed grain-importing countries of 58 million metric tons of grain in 1980.

Under the alternative hypothesis, the needs would be slightly less, 54 million tons.

In either case, the grain import needs in 1980 would be nearly double those for 1970 and more than double those in 1964/65. And the increase in per capita grain consumption would be small. India and Pakistan would take from 20 to 24.0 million tons.

MODERATE IMPROVEMENT ASSUMPTION

IF: Rate of growth in production of the less-developed grain-importing countries is moderate—2.9 per cent—as a result of more emphasis on agricultural development but no “crash” program to boost production.

With this moderate improvement in LDC grain output, world grain producers by 1980 would have the capacity to produce 39 million tons more than could be

effectively used.

The less-developed importing countries would still require sizable imports—52 million tons.

And, while there would be a per capita grain consumption increase of about 0.7 per cent a year, there would still be a calorie gap. This compares with 0.4 per cent a year in the preceding assumption.

RAPID IMPROVEMENT ASSUMPTION

IF: Grain output rises rapidly to attain 4 per cent a year by 1975 in the developing grain-importing countries.

In case of such rapid advances by the developing nations, world capacity to produce grain could exceed effective demand by 63 million tons in 1980.

The LDC grain importers would need to import 28 million tons of grain, only 5.8 million tons more than the LDC grain exporters would be shipping out.

Average per capita grain consumption would be close to adequate for most of the formerly underfed nations.

Commercial grain sales would largely supplant sales under concessional government programs because of the rapid agricultural and economic growth.

There is little likelihood, however, that this rapid rate of improvement will materialize in such a relatively short span of years in many of the LDC's.

For one thing, the changeover from sickles to harvesting machines and from digging sticks to mechanical cultivators is not quickly or easily made.

Most of the developing countries have a long way to go before they can apply—or pay for—the technologies needed to awaken their land abruptly and put it fully to work.

Most of the countries will continue to need capital assistance for some time. They also will need substantial technical assistance.

But how much capital or counsel will be forthcoming from the world's developed nations is highly uncertain.

There are also many social, political and economic obstacles to be overcome before the developing countries can greatly accelerate their traditional rates of growth and break their dependence on grain imports.

HOW DOES THE U.S. FIT IN?

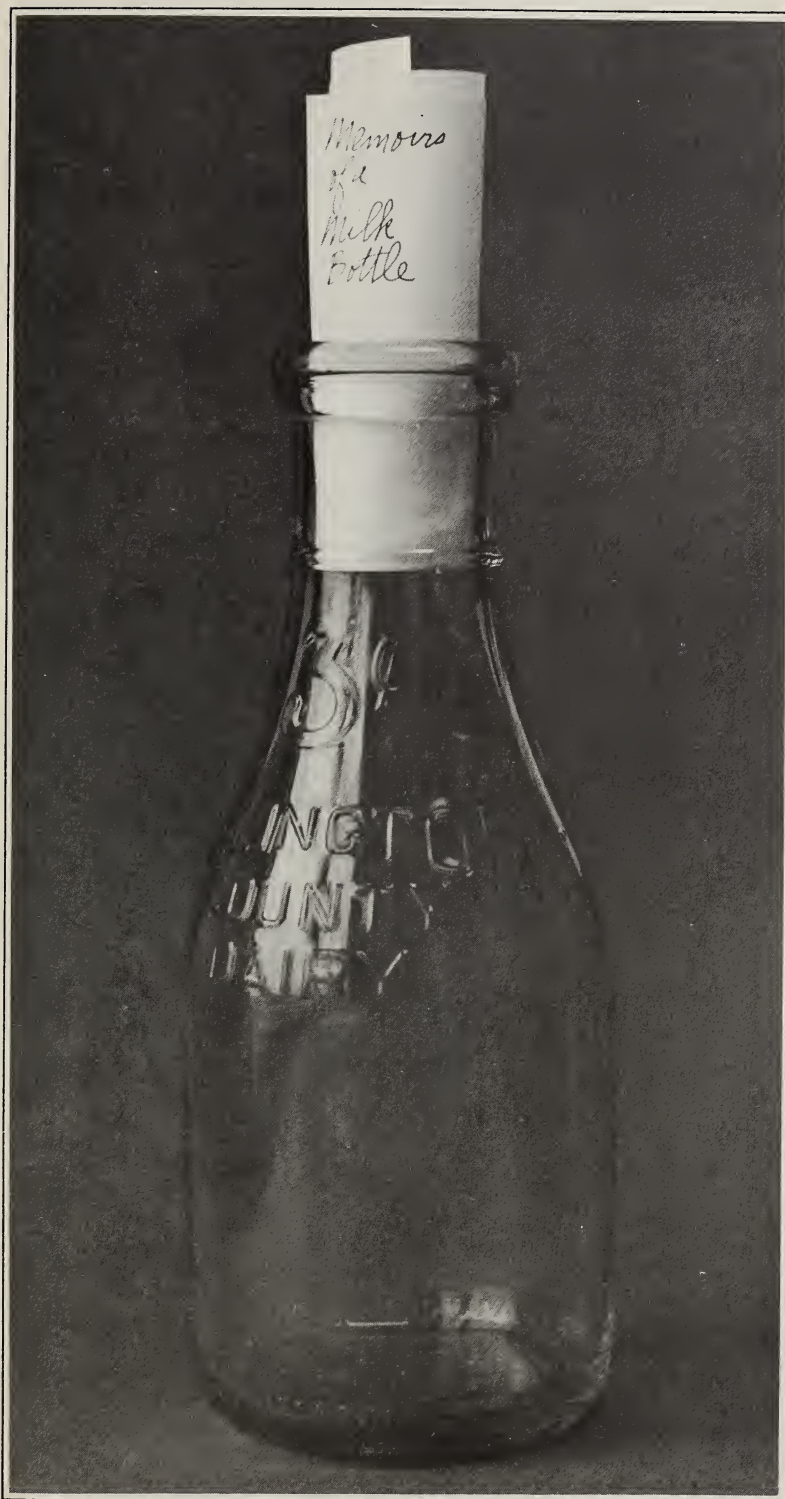
While the capacity of U.S. farmers to expand grain output will increase, so will that of farmers in other grain-exporting areas.

Thus the United States is vitally concerned as to the consequences of the alternative paths that might be taken in balancing future world grain supplies in line with effective world demand.

The answers are likely to depend on to what degree the United States can encourage self-help efforts of the developing countries; and to what degree the U.S. will be able to share responsibility with other countries for food aid, management of marketing machinery, and technical assistance to the LDC's.

An important consideration is whether the United States is the only nation pursuing supply management programs, or whether this function is distributed more broadly. Unless all developed nations share in the responsibility for economic growth in the LDC's and in the supplying of the food demands, the U.S. may expect a total level of grain production in 1980 of only about 165 million acres, about the same as in 1967.

The world food problem can be solved. The ERS study indicates that a high level of international cooperation toward that goal will contribute to more effective growth in the developing countries. It will also lead to a more equitable sharing of both the responsibilities and the gains to be expected from accelerated economic development.



In almost a century of life, the glass bottle has seen the demise of the tin dipper, but now it finds itself being shoved aside by paper containers—and plastic ones, too.

The tin milk dipper hangs beside the wooden butter mold in collections of early Americana. How long before the glass milk bottle joins them?

It's been with us since around 1878, but now has largely given way to the paper container.

The paper container made its debut in Los Angeles in 1906, but wasn't widely accepted until the late 1930's. Today it holds about 62 per cent of fluid whole milk sales. Glass has slipped to around 32 per cent, and other materials—notably plastics—take the balance.

(The above percentages are averages drawn from a survey of 67 federally-regulated milk markets. The contrast is likely to be sharper in selected cities. In St. Louis, for example, over 77 per cent of milk sales are now in paper containers.)

Before the advent of the glass quart, milk sold to the consumer was dipped from a 5 or 10-gallon metal can into the consumer's own container. Aside from being unsanitary, this method also invited adulteration of the milk.

The past century of change in milk containers has also been marked by other milk marketing shifts of benefit or convenience to the milk consumer.

For one thing, there have been big changes in the type of milk we drink. Among the most significant has been the transition from raw milk to pasteurized—an outgrowth of efforts to reduce infant mortality.

Pasteurized milk was first sold commercially in New York State (Brooklyn) in the late 1800's. Today, practically all milk sold for fluid use is pasteurized.

Most of the milk we buy is also homogenized. First marketed

successfully in Flint, Michigan in 1932, homogenized milk gradually became a national preference. There is little demand today for "creamline" milk.

All states require pasteurization for all or most milk. A few allow farmers to sell raw milk. A number of states, however, permit sales of special raw milks, such as certified milk.

Certified milk, not necessarily pasteurized, is produced and bottled under regulations of authorized medical boards.

The first certified milk was produced in 1893 in Essex County, N. J., under the guidance of the Essex County Medical Milk Commission, concerned about supplies of safe milk for infant feeding. Because of high production costs, along with the associated higher selling prices, production of certified milk has been relatively small.

In the changing pattern of our milk-drinking and milk-buying, there has been a shift in the size of container preferred.

The time-honored quart has ceded its place to the half-gallon in many areas, judging by both store sales and home deliveries. And in store sales especially, the gallon container is now gaining on the half-gallon. In a few areas, more milk is sold in gallons than in any other container.

These changes are directly associated with a trend away from home deliveries of milk.

What's ahead?

The milkman on his pre-dawn route may become an increasingly rare figure. The majority of his former customers will be buying their milk in half-gallon and gallon containers at the nearest store. But returnable plastic containers may spark a comeback of home delivery.

Paper containers may be further improved and their popularity may increase while use of glass declines.

New translucent plastic containers may loom larger in the picture if costs can be lowered to

make them more competitive with other containers. Their proponents believe they will prove popular because many people like to see the product they are buying. (19)

Customer's Taste May Affect Baker's Cost in Making Loaf of White Bread

The loaf of white bread we buy today isn't the same product we bought 20 years ago.

Consumer preferences have prompted some of the changes, which in turn have affected bakers' costs. Here are five examples:

—Today nearly all white bread is sliced at the bakery, while 20 years ago much of it was sold unsliced. This has added to average costs.

—Richer-formula, higher-priced breads have found increasing favor with consumers as incomes have increased. In most markets these richer-formula types of bread sell in greatest volume.

There is a U. S. standard of identity for white bread that specifies the minimum level for each ingredient. Most bakers, however, use more than the allowed minimum of milk, sugar and fat.

When there's a price spread of as much as 3 to 6 cents per pound for white bread of different brands but same size loaf, the difference is at least partly due to higher ingredient costs—which may also vary regionally and seasonally.

—Most consumers want bread to stay soft and fresh until the whole loaf is used. This has prompted bakers to use resealable plastic film bags for packaging. These bags cost nearly a cent more per loaf than the common wax wrapper of yesteryear.

—Per capita bread consumption and family size have been decreasing. Hence, smaller loaves now outsell large loaves in some markets. The price of smaller

loaves is significantly greater per unit of weight in most retail outlets.

—A new kind of white bread becoming increasingly popular, particularly on the West Coast, is also one of the higher priced. It is the "balloon" loaf, so called because it contains more air per given unit of weight.

This type of bread sells for as much as 5 cents more per pound than standard white bread in some markets. Yet it has become the bread item sold in the greatest volume in most stores that stock it. (20)

Holiday Forecast: Autumn Nut Bowl Will Be Full, Especially With Pecans

When you play the shell game this season, chances are the nut you use will be a pecan, an almond or a walnut.

You might end up with a filbert, in hand but it isn't likely.

These are the rules of the game, if the odds follow the proportions of tree nut production made up by the major domestic nuts.

This year's crop of the four major tree nuts is running about 271,300 tons. That puts it a shade below 1966 output but somewhat higher than average annual production.

Pecans should make up some 38 per cent of this year's estimated output of tree nuts. Almonds would be another 30 per cent, walnuts, 28 per cent, and filberts, 4 per cent.

The Christmas nut bowl should be well filled by the harvest of pecans this fall. It's currently forecast to be 29 per cent greater than last year, though somewhat below the average output.

In fact, the pecan groves alone are helping to maintain supplies of holiday nuts. From the standpoint of tonnage, the bigger harvest should almost—but not quite—take up the slack left by smaller harvests in sight for almonds, walnuts and filberts. (21)

UTILIZATION OF PLANT CAPACITY IN MINNESOTA DAIRY MANUFACTURING FIRMS. Orval Kerchner, Marketing Economics Division. ERS-349.

Managers of 83 dairy manufacturing plants in Minnesota were interviewed for this study. The plants were selected from a number of plants which produced butter, dry milk products and cheese, either alone or in combination.

On the average, all plants utilized 98 per cent of their capacity daily. On peak days, the range of capacity was from 68 to 90 per cent. On the day of lowest receipts, utilization ranged from 27 to 42 per cent.

The factors most highly correlated with plant capacity were daily milk receipts, cheese vat capacity and holding capacity.

COMPREHENSIVE PLANS FOR IMPROVING RURAL COUNTIES. Erling D. Solberg, Natural Resource Economics Division. Agri. Inf. Bul. No. 316.

For many rural counties, now is the time to prepare a comprehensive plan, an overall pattern of development. A comprehensive plan shows how a county can best use what it has, to become the kind of place it wants to be. It specifies how present and future improvements and uses of land and other natural resources should be related. It is a guide to both public and private development activities as aids to comprehensive planning.



recent publications

The publications listed here are issued by the Economic Research Service and cooperatively by the state universities and colleges. Unless otherwise noted, reports listed here and under Sources are published by ERS. Single copies are available free from The Farm Index, OMS, U.S. Department of Agriculture, Washington, D.C. 20250 State publications (descriptions below include name of experiment station or university after title) may be obtained only by writing to the issuing agencies of the respective states.

FARM REAL-ESTATE CREDIT: AN ANALYSIS OF BORROWERS AND LENDERS. P. T. Allen, Farm Production Economics Division. AER-104.

This report focuses on eight types of lenders advancing farm real estate or mortgage credit.

AN ECONOMIC ANALYSIS OF ALTERNATIVE WATER SUPPLY PROGRAMS IN A SPECIFIC RESOURCE SITUATION, TEXAS HIGH PLAINS. W. L. Harman and W. F. Hughes, Farm Production Economics Division, and J. W. Graves, Texas Agricultural Experiment Station (College Station). Texas Agri. Expt. Sta. MP-822.

Declining static water levels in many of the irrigated parts of the High Plains raise questions as to how the diminishing water supplies can be used most advantageously and about the period of time during which their use will be economically feasible. This report analyzes three alternative water supply programs for a selected resource situation in a selected resource area where the remaining water-bearing materials were 62 feet thick. At 1964 prices, the study indicates that it is impractical to maintain current levels of irrigated acreage for more than a few years.

ENGINEERING AND ECONOMIC ASPECTS OF COTTON GIN OPERATIONS... MIDSOUTH, WEST TEXAS, FAR WEST. Charles A. Wilmot, Victor L. Stedronsky, Zolon M. Looney and Vernon P. Moore, Marketing Economics Division. AER No. 116.

This study was undertaken to provide ginners with scientifically developed plans for gin machinery combinations and arrangements which may be adapted to meet their specific requirements.

Numbers in parentheses at end of stories refer to sources listed below:

1. W. D. Rasmussen (SM); 2. H. Delvo, D. Ransom, D. Lane, Methods of Growing Corn and Grain Sorghum in Nebraska, EC 67-833 (P*); 3. W. R. Grant, T. Mullins, Effects of Allotment and Price Changes on Rice Farms in the Mississippi River Delta, Ark. Agri. Expt. Sta. Rept. Series 156 (P*); 4. W. D. Rasmussen (SM); 5. Farm Income Situation, FIS-207 (P); 6. N. J. Wall, Farm Credit Facilities in the United States—Specialized Functions of Private and Public Sources of Credit (S); 7. O. E. Leonard, H. W. Johnson, Low-Income Families in the Spanish-Surname Population of the Southwest, AER No. 112 (P); 8. R. Cooper, S. D. Staniforth, A. Johnson, R. Christiansen, Cabin Resort Income in the "Near North" (M*); 9. M. F. Jordan, J. F. Golden, L. D. Bender, Aspirations and Capabilities of Rural Youth (M*); 10. L. J. Hewitt, S. D. Staniforth, R. Christiansen, The Economic Impact of Retirement in the Resort Area of Oneida and Vilas Counties, Wisconsin (M*); 11. Marketing Economics Division (SM); 12. Marketing Economics Division (SM); 13. Marketing Economics Division (SM); 14. Marketing Economics Division, Developments in Marketing Spreads for Agricultural Products in 1966: ERS Presentation to Agricultural Subcommittee of the House Committee on Appropriations (M); 15. G. B. Rogers, Changes in Structure and Practices in the Poultry Industry (S); 16. G. B. Rogers, H. Bluestone, Comparative Position of the Midwestern Egg Industry, MRR-784 (P); 17. Farmer Cooperative Service (SM); 18. M. E. Abel, A. S. Rojko, World Food Situation, FAER No. 35 (P); 19. W. W. Jones, Some Historical Changes in the Marketing of Fluid Milk (M); 20. R. Enochian (SM); 21. Fruit Situation, TFS-164 (P); 22. M. Long (SM).

Speech (S); published report (P); unpublished manuscript (M); special material (SM); *State publications may be obtained only by writing to the experiment station or university cited.

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Pennies from Heaven

Australian rainmakers joined forces with nature last year to add some extra wheat to the 1966/67 harvest in the Wimmera grain belt of Victoria.

The successful rainmaking experiment—the first designed to help wheat growers—cost \$16,800.

It was carried out by the Victorian Agriculture Department and the Australian Commonwealth Scientific and Industrial Research Organization.

Rainmakers induce their product by sowing clouds with burning silver iodide and acetate. The smoke forms moisture-attracting crystals in the clouds and when tiny droplets amalgamate, they fall as rain.

Best results are obtained when cloud temperatures are about 14 degrees Fahrenheit.

The Australian experiment extended over an 18-week period, during which a plane with its rainmaking equipment was on constant standby, waiting for clouds suitable for sowing.

Success of the project came in the form of rain over 98 per cent of the 10,000 acres covered. And rainfall for the period was up by 1.1 inches—24 per cent higher than in unseeded areas.

The Wimmera experiment was only a part of Australia's official rainmaking activities last year. Among others was a rain-seeding project carried out by government aircraft in the wheat areas of New South Wales. Harvests in these areas were also above average.

(For rainmaking developments in the U.S., see page 7.) (22)

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The contents of this magazine are based largely on research of the Economic Research Service and on material developed in cooperation with state agricultural experiment stations. All articles may be reprinted without permission. For information about the contents, write the editor, The Farm Index, Office of Management Services, U.S. Department of Agriculture, Washington, D. C. 20250. Use of funds for printing this publication approved by the Director of the Bureau of the Budget, May 24, 1967. Subscription orders should be sent to the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402. Price 20 cents (single copy). Subscription price: \$2.00 per year; 75 cents additional for foreign mailing.

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